



Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park - Environmental Statement Volume III

Appendix 5.2: Coal Mining Risk Assessment

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RSK



Galileo 03 Limited

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Appendix 5.2: Coal Mining Risk Assessment

Report no. 323220-R02 (02)

RSK GENERAL NOTES

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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1 INTRODUCTION

- 1.1.1 This report has been prepared by RSK Environment Limited (RSK) on behalf of Galileo 03 Ltd (part of Galileo Empower UK Ltd) (hereinafter referred to as 'Galileo' or the 'Applicant').
- 1.1.2 RSK was commissioned by Galileo to carry out a Coal Mining Risk Assessment (CMRA) of the land at the proposed Mynydd Ty-talwyn Energy Park, near Fordd-Y-Gyfraith, Bridgend, CF32 0BS ('the Site').
- 1.1.3 The Site is being considered for development for an onshore Energy Park comprising wind turbines, ground mounted solar photovoltaic (PV) modules, a project substation and ancillary infrastructure ('the Proposed Development').
- 1.1.4 The assessment provided in this report is required due to the Site being within an area defined by the Mining Remediation Authority (formerly the Coal Authority) as a 'Coal Mining Development Referral Area'.
- 1.1.5 The Mining Remediation Authority, in common with other statutory consultees, utilises a risk-based approach for the advice that they offer on Proposed Developments in relation to coal mining legacy issues. The Site lies within the Coal Mining Reporting Area and includes Development High-Risk areas. It is a requirement for High-Risk areas to prepare a desk based CMRA to support planning applications. It should be noted that since the receipt of the Consultants Coal Mining Report (see **Annex B**), the Coal Authority has changed its name to the Mining Remediation Authority.
- 1.1.6 A CMRA needs to consider a number of sources of information to determine coal mining issues relevant to a site. It then needs to identify and assess the site-specific coal mining risks and propose an appropriate mitigation strategy relevant for the proposed site end-use. This approach has been followed in the current assessment.
- 1.1.7 Guidance from the Mining Remediation Authority outlines the assessment stages required for a CMRA, which are included in the following sections of this report:
- Stage 1 - Sources of information:
 - Sections 1 and 2 provide background information.
 - Section 3 presents available desk-based information.
 - Stage 2 - Assessment of site-specific coal mining risks:
 - Section 4 presents an assessment of the site-specific coal mining risks.
 - Stage 3 - Mitigation strategy proposed:
 - Section 5 presents the required mitigation measures to address the identified risks.

1.2 Scope of Coal Mining Risk Assessment

1.2.1 The scope of this CMRA is to:

- Present a review of all available information on the coal mining issues which are relevant to the Site, including the findings of any previous site investigation work (which was not undertaken for the purposes of assessment of coal mining) and this phase of desk-based review work;
- Use that information to identify and assess potential risks to any proposed redevelopment of the Site, due to the coal mining legacy; and
- Identify the required mitigation measures to address the site-specific coal mining risks.

1.3 Limitations

1.3.1 The comments given in this report and the opinions expressed are based on information gained in **ES Volume III, Appendix 5.1: Preliminary Risk Assessment** (PRA) desk study produced by RSK (Report Ref: 323220-R01 (02), dated November 2025), the sources of which are presented within the report for reference.

2 THE SITE

2.1 Site Location and Description

2.1.1 Site location details are presented in **Table 1** and a Site location plan is provided on **Figure 1**.

Table 1 Site location details

Site name	Mynydd Ty-talwyn Energy Park
Full site address and Post code	Near Fordd-Y-Gyfraith, Bridgend, CF32 0BS
National Grid reference (centre of site)	SS 86327 86041

2.1.2 The Site forms an irregular shape, with undulating topography and covers an area of approximately 578 hectares. A Site boundary plan is shown on **Figure 2**.

2.1.3 The land within the Site boundary predominantly consists of agricultural fields (mainly used for pasture), with some area of woodland, interspersed with hedgerows, fences, stone walls and farm access tracks.

2.1.4 The main C-Class Road that crosses the Site runs from the north-western corner of the Site and heads in a south-easterly direction before entering Fordd-Y-Gyfraith, immediately east of Wiggleys Fun Farm (and joins on to the main road 'New Road'). Another C-Class Road runs north-south though the Site, near the western boundary, joining New Road in the south.

2.1.5 There are a small number of farms and associated buildings at the Site. Cefn Parc Motocross Track is located towards the centre of the Site area.

2.1.6 The Site is crossed by public footpaths, including the main trail route of the Glamorgan Rideway Path, that runs in a south-easterly direction, from the north-west corner of Site to the eastern boundary.

2.1.7 There are operational (small-scale) wind turbines located within the south of Site.

2.1.8 The Site is located in a former coal mining area with associated quarries and adits located within the Site boundary and in the vicinity.

2.2 Proposed Development

2.2.1 The Proposed Development comprises the construction, operation, and subsequent decommissioning, of six wind turbines, ground mounted solar photovoltaic (PV) modules, one project substation, and ancillary infrastructure works.

2.3 Geology

- 2.3.1 A review of the available geological maps has been made, which includes:
- British Geological Survey (BGS) map 1-63,360 scale, Sheet 248, Pontypridd, 1963 (solid);
 - British Geological Survey (BGS) map 1-10,560 scale, Sheet 34NW, Pontypridd, 1959 (solid); and
 - British Geological Survey (BGS) map 1-10,560 scale, Sheet 34SW, Pontypridd, 1960 (solid).
- 2.3.2 Published records (as listed above) indicate the Site to have no superficial deposits and is immediately underlain by bedrock comprising sandstone interbedded with siltstone/mudstone and coal seams.
- 2.3.3 Made ground is anticipated to be localised to historical structures and roads (on and off-site). The Site would be expected to be directly underlain by a limited thickness of topsoil/subsoil.
- 2.3.4 The bedrock geology across the majority of Site comprises the Pennant Sandstone Formation. The sedimentary bedrock of Carboniferous age is described as 'green-grey, lithic arenites ('Pennant sandstones') with thin mudstone/siltstone and seat earth interbeds and mainly thin coals'.
- 2.3.5 The Pennant Sandstone Formation can be split into the Brithdir, Rhondda and Llynfi Member:
- the Rhondda Member sandstone top is placed at the base of the Brithdir Coal, 'where the coal overlies thin mudstone/seat earth at the top of the Member and is overlain by lithic ('Pennant') sandstone and thin siltstone/mudstone of the Brithdir Member';
 - 'the base of the Rhondda Member is placed at the base of the No.2 Rhondda Coal of the Rhondda valleys; the seam is named the Llwydcoed Seam in the Ammanford district and the Wernddu in the Swansea district. The coal rests conformably on lithic ('Pennant') sandstones and thin mudstones/siltstones of the underlying Llynfi Member'; and
 - the Llynfi Member sandstone overlays the South Wales Coal Measures Group, which are visible towards the southern boundary of the Site.
- 2.3.6 The South Wales Coal Measures Group are described as grey coal-bearing mudstones/siltstones with seat earths and minor grey, quartz-rich sandstones, coals and ironstones, which are visible towards the southern boundary of the Site.
- 2.3.7 Bedrock units dip at approximately 8.2° to 26.8° towards the north/north-east.
- 2.3.8 The Pen-y-Castell fault is located towards the northern boundary of the Site.
- 2.3.9 **Figures 5 to 9** display the geology and includes:
- An extract of the Site Geology (BGS map sheet 248, 1:63,360 scale) presented in **Figure 5**;

- The generalised vertical geological sequence for the area (BGS map sheet 248, 1:63,360 scale) presented on **Figure 7**;
- The western cross section (Line of Section 1) from Sheet 248 is presented in **Figure 8**. (Note that the geological sequence below the area of Mynydd Margam is representative of the geological sequence of Site). The 'line of section' location is displayed on **Figure 6**; and
- A simplified summary of the Site geology is presented in **Figure 9**.

2.3.10 The main coal seams and horizons trend in an east-west direction and the key ones listed are below, in order of outcrop, from north to south (see also **Figures 5 to 9**):

- Brithdir Rider;
- Brithdir;
- No. 1 Rhondda Rider;
- No. 1 Rhondda;
- No. 2 Rhondda;
- No. 3 Rhondda;
- Hafod; and
- Five foot.

2.3.11 A selection of publicly available BGS historical borehole logs are presented in **Annex C** and discussed further in **Section 3.8**.

2.3.12 Fireclay was mined together with the coal in some areas of South Wales. Although unconfirmed on site, there is potential for some deposits of this unit, a clay-rich horizon, which is sometimes present within the "fossil earth" or "seat earth" frequently located directly below a coal seam. Fireclay was historically mined for its heat-resistant properties and is also referred to as 'warrant' in borehole logs, although this material was not identified on the available logs for the area around the Site.

3 COAL MINING DESK STUDY

3.1 Introduction

3.1.1 A review of available information has been undertaken to establish the historical development of the Site in relation to coal mining activities and to ascertain their influence on current and proposed future site development. The following sources of information have been used within the review:

- Historical Ordnance Survey mapping (circa 1876 to 2023) available within a site-specific Environmental database report (presented in **Annex A**);
- British Geological Survey (BGS) map 1-63,360 scale, Sheet 248, Pontypridd, 1963 (solid) (see **Figures 5 to 9**);
- British Geological Survey (BGS) map 1-10,560 scale, Sheet 34NW, Pontypridd, 1959 (solid);
- British Geological Survey (BGS) map 1-10,560 scale, Sheet 34SW, Pontypridd, 1960 (solid);
- Consultants Coal Mining Report, Mynydd Ty-talwyn Energy Park, reference 71009601103001, issued 28 June 2023 (presented in **Annex B**); and
- British Geological Survey borehole logs (provided in **Annex C**).

3.2 Site History

- 3.2.1 The development history of the Site and surrounding area based upon assessment of historical plans and records is detailed in **Table 2**.
- 3.2.2 The Site and its surroundings have been split in into areas A to H. This corresponds to the environmental database report (Landmark, 2023), as displayed on **Figure 4** and referenced in the sections below.
- 3.2.3 The historical maps reviewed, and the area described, are shown within the environmental database report in **Annex A**.
- 3.2.4 The Site is located in a former coal mining area with mine entries and shallow quarries on and off-site. Since the earliest available historical mapping (1876), the Site has undergone little change and comprised mainly fields, heathland/grassland and woodland, with a number of roads, streams and farm buildings. Over time much of the heathland/grassland has been replaced by agricultural fields. Specific details about the different areas of the Site and surrounding area are shown in **Table 2** and **Table 3. ES Volume III, Annex 5.1: Preliminary Risk Assessment** should be referred to for additional details.

Table 2 Summary of Historical Development (on-site)

Date from	Date to	Historical Land Use (on-site)	Area of site (Envirocheck Ref.)
1876	2023	Two small 'old gravel pits' were noted on the western boundary in earliest historic mapping adjacent to the road, which follows the western boundary.	D7
		A Roman camp and intrenchments were noted south-west of area E.	E2, E3
		'Old quarry' present in south of area E4.	E4
		A number of old quarries were noted in the north of the Site, which do not appear to have been backfilled.	E9, E10
		Structures labelled 'British Residence' and 'standing stones' were noted in the north of the Site.	E10
1898	1918	Old tramway in northeast corner of the Site.	E15, E11
1918	1964	'Old coal level' located adjacent to Nant Cefnydfa, in the north of E4 and another in the southwest (east of intrenchments).	E4
		Ton Phillip Colliery noted in the south-west of the Site with two main shafts and associated tramway. Noted disused by 1964.	B10
		Coal level noted in south-west corner, connected to Ty-talwyn colliery to the south. Noted disused by 1964.	B13
1942	1993	Old level noted in south edge and southeast of Site.	B12, B16
1963	2023	A number of sites of old huts located around the centre of the Site.	E
1964	1993 (latest 1:2,500 map)	'Old coal level' located adjacent to Nant Cefnydfa, in the north of E4 now labelled with 'Springs', 'Sinks' and 'Issues'. 'Issues' labelled in the southwest of E4 and tank noted in the same area.	E4
1989	1993	A refuse tip was noted south of Baiden Farm in the southeast of the site (outside the developable area).	B15

Table 3 Summary of Historical Development (Off-site)

Date from	Date to	Historical Land Use (off-site)	Distance (m) and orientation
1884	1995	Woollen Mill/Factory with Mill Race, disused by 1918. Labelled as Brockfield Mill by 1964.	250 m N (E14)
1884	1999	Old Quarry, possibly not backfilled.	500 m N (E14)
1887	1898	Old Coal Shafts, not labelled and assumed backfilled by 1989.	100 m N (E15)
1918	1963	Ty-talwyn Colliery, labelled disused by 1963.	100 m W (B9, B13)
1921	1964	Aber-baiden Colliery, noted disused from 1964.	750 m W (A16)
1964	2023	Bridgend Paper Mill with associated tanks.	80 m N (E12)
1964	2023	Settling Ponds, likely related to Llynfi Power Station.	500 m E (E8)
1964	2023	Llynfi Power Station (closed in 1977 and subsequently demolished).	680 m NE (F9)
Relevant information sources: Historical OS maps			
<i>Note: Reference to published historical maps provides invaluable information regarding the land use history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive maps.</i>			

3.3 Identified Coal Mining Risks

3.3.1 **Table 4** summarises potential risks associated with coal mining and identifies those that are applicable to the Proposed Development.

Table 4 Identification of Site-specific Coal Mining Risks

Coal mining issue	Present on site	Risk assessment
Underground coal mining (recorded at shallow depths)	No	Desk based review will consider this, but not considered to be an issue

Coal mining issue	Present on site	Risk assessment
Underground coal mining (probable at shallow depths)	Unknown	Assessment required
Mine entries (shafts and adits)	Yes	Assessment required
Coal mining geology (fissures)	No	Desk based review will consider this, but not considered to be an issue
Record of past mine gas emissions or potential	No	Desk based review will consider this, but not considered to be an issue
Recorded coal mining surface hazard	No	Desk based review will consider this, but not considered to be an issue
Surface mining (opencast workings)	Yes	Desk based review will consider this

3.3.2 Where risks identified in **Table 4** require assessment, this has been carried out and is provided in subsequent sections of this report.

3.4 Information from Environmental Database Report

3.4.1 A summary of BGS recorded mineral sites are summarised in **Table 5**. Locations of these sites are indicated on **Figure 11**. On-site mining works associated with certain collieries are listed below and located towards the northern and southern boundaries of the Site (Envirocheck index map locations are displayed in **Figure 4**):

- Ty-talwyn Colliery (A16) (B13);
- Ton Phillip (B10) (B13);
- Ty-Newydd and Aber-Baiden (B10) (including opencast mining);
- Pen-Tyle (B13) (E1) (including opencast mining);
- Cwmbach and Cwmrisca-Isaf (C9);
- Bryn-Cynan & Maes-Cadlawr (E10) (including opencast mining); and
- Gilfach-Isaf & Maes-Cadlawr (E9) (including opencast mining).

3.4.2 The colliery sites were predominately used for underground coal mining of seams within the Pennant Sandstone Formation (e.g. No. 2 Rhondda Coal, No. 3 Rhondda Coal and Llynfi Member Coal) as well as older coal from the South Wales Upper Coal Measures Formation. A number of opencast mining operations are also listed for sandstone extraction.

Table 5 **Summary of BGS Recorded Mineral Sites**

Envirocheck Slice ref. (Figure 4)	On-site	0 to 250 m	251 to 500 m	501 to 1000 m (*up to 2000 m)	Details*
A	0	0	5	2	Closest off-site feature: Ty-Talwyn Colliery; Location: Kenfig Hill, Pyle, West Glamorgan; Reference: 98286; Type: Underground; Status: Ceased; Geology: No. 2 Rhondda Coal (South Wales) – Coal . (Envirocheck Segment Ref: A16; NGR: 285300, 185230).
B	4	5	5	13	On-site: Pen-Tyle; Location: Cefn Cribwr, Bridgend, Mid Glamorgan; Reference: 160275; Type: Underground; Status: Ceased; Geology: Rhondda Member – Coal. (Envirocheck Segment Ref: B13; NGR: 285797, 185113). On-site: Ton-Phillip Colliery; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 98295; Type: Underground; Status: Ceased; Geology: No. 3 Rhondda Coal (South Wales) – Coal. (Envirocheck Segment Ref: B10; NGR: 286270, 184695). On-site (very close to south boundary): Tynewydd; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 98296; Type: Opencast; Status: Ceased; Geology: Llynfi Member – Sandstone (Envirocheck Segment Ref: B10; NGR: 286275, 184660). On-site (very close to south boundary): Aber-Baiden; Location: Kenfig Hill, Pyle, West Glamorgan; Reference: 98298; Type: Opencast; Status: Ceased; Geology: Llynfi Member – Sandstone. (Envirocheck Segment Ref: B10; NGR: 286275, 184660). Off-site: Ty-Talwyn Colliery; Location: Kenfig Hill, Pyle, West Glamorgan; Reference: 98284; Type: Underground; Status: Ceased; Geology: No. 2 Rhondda Coal (South Wales) – Coal. (Envirocheck Segment Ref: B13; NGR: 285660, 185160). Also listed with the same grid reference: Ton-Phillip Colliery No 1 Mine; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 98292; Type: Underground; Status: Ceased;

Envirocheck Slice ref. (Figure 4)	On-site	0 to 250 m	251 to 500 m	501 to 1000 m (*up to 2000 m)	Details*
					Geology: No. 3 Rhondda Coal (South Wales) – Coal. (Envirocheck Segment Ref: B13). Off-site: Ton Phillip; Location: Cefn Cribwr, Bridgend, Mid Glamorgan; Reference: 160249; Type: Underground; Status: Ceased; Geology: Llynfi Member – Coal. (Envirocheck Segment Ref: B10; NGR: 286539, 184709). Off-site: Ton-Phillip Colliery No 2 Mine; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 98293; Type: Underground; Status: Ceased; Geology: No. 3 Rhondda Coal (South Wales) – Coal. (Envirocheck Segment Ref: B10; NGR: 286130, 184575). Off-site (very close to south boundary): Ton-Phillip Colliery; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 98294; Type: Underground; Status: Ceased; Geology: No. 3 Rhondda Coal (South Wales) – Coal. (Envirocheck Segment Ref: B10; NGR: 286255, 184590).
C	3	1	3	13	On-site: Cwmbach; Location: Tondu, Bridgend, Mid Glamorgan; Reference: 160246; Type: Underground; Status: Ceased; Geology: Llynfi Member – Coal. (Envirocheck Segment Ref: C9; NGR: 288209, 184693). On-site: Cwmbach; Location: Tondu, Bridgend, Mid Glamorgan; Reference: 160247; Type: Underground; Status: Ceased; Geology: Llynfi Member – Coal. (Envirocheck Segment Ref: C9; NGR: 288194, 184688). On-site: Cwmrisca-Isaf; Location: Tondu, Bridgend, Mid Glamorgan; Reference: 160248; Type: Underground; Status: Ceased; Geology: South Wales Upper Coal Measures Formation – Coal. (Envirocheck Segment Ref: C9; NGR: 288086, 184520).
D	-	-	-	3	N/A

Envirocheck Slice ref. (Figure 4)	On-site	0 to 250 m	251 to 500 m	501 to 1000 m (*up to 2000 m)	Details*
E	4	5	-	2	On-site: Maes-Cadlawr; Location: Llangynwyd, Maesteg, Mid Glamorgan; Reference: 160202; Type: Opencast; Status: ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E9; NGR: 285966, 186988). On-site: Maes-Cadlawr; Location: Pont Rhyd-Y-Cyff, Maesteg, Mid Glamorgan; Reference: 160203; Type: Opencast; Status: Ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E10; NGR: 286426, 187166). On-site: Maes-Cadlawr; Location: Pont Rhyd-Y-Cyff, Maesteg, Mid Glamorgan; Reference: 160204; Type: Underground; Status: Ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E10; NGR: 286556, 187027). On-site (very close to northern boundary): Maes-Cadlawr; Location: Llangynwyd, Maesteg, Mid Glamorgan; Reference: 160201; Type: Opencast; Status: Ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E9; NGR: 285716, 187207). Off-site to the north: Bryn-Cynan; Location: Pont Rhyd-Y-Cyff, Maesteg, Mid Glamorgan; Reference: 160198; Type: Opencast; Status: Ceased.; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E10; NGR: 286205, 187420). Off-site to the north: Gilfach-Isaf; Location: Llangynwyd, Maesteg, Mid Glamorgan; Reference: 160200; Type: Opencast; Status: Ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E9; NGR: 285697, 187378). Off-site to the north: Gilfach-Isaf; Location: Llangynwyd, Maesteg, Mid Glamorgan; Reference: 160200; Type: Opencast; Status: Ceased; Geology: Brithdir Member – Sandstone. (Envirocheck Segment Ref: E9; NGR: 285710, 187426).

Envirocheck Slice ref. (Figure 4)	On-site	0 to 250 m	251 to 500 m	501 to 1000 m (*up to 2000 m)	Details*
					Off-site to the west: Pen-Tyle; Location: Cefn Cribwr, Bridgend, West Glamorgan; Reference: 160274; Type: Opencast; Status: Ceased; Geology: Rhondda Member – Sandstone . (Envirocheck Segment Ref: E1; NGR: 285392, 185563).
F	-	-	-	7	N/A
G	-	-	-	-	N/A
H	-	-	-	3	N/A
*Entries have only been included within the table where they are located within the Site or, where they fall outside of this radius but are considered to comprise a significant entry.					

3.5 Consultants Coal Mining Report

- 3.5.1 A Consultants Coal Mining Report has been obtained as part of this CMRA and is included in **Annex B**.
- 3.5.2 The report was obtained using the initial proposed Site boundary as shown on the map provided within **Annex B**. The Site boundary that is being considered as part of this assessment has since been updated, as shown on **Figure 3**. Although not all areas of the Site boundary are within the original Site boundary reported on by the Consultants Coal Mining Report, it has been possible to obtain equivalent data from the publicly accessible dataset provided by the Mining Remediation Authority, to ensure that there are no locations that have not been fully assessed.
- 3.5.3 No other Mining Remediation Authority reports or existing reports relevant to the Site assessment have been provided to RSK.
- 3.5.4 The key findings from the Mining Remediation Authority sourced information are detailed below:
- The Site is in an area that could be affected by underground mining, mainly from three coal seams, as detailed below:
 - No. 3 Rhondda coal seam, at a depth of between 246 m and 730 m below ground level (bgl), which were worked between 1908 and 1950. The seam thickness is recorded as between 80 cm and 167 cm, with a dip of between zero and 19.3° towards the north or north-east;
 - Hafod coal seam, at a depth of between 383 m and 485 m below ground level (bgl), which were worked between 1950 and 1958. The seam thickness is recorded as 116 cm, with a dip of between 17.2° and 17.7° towards the north; and
 - Five-foot coal seam, at a depth of between 820 m and 837 m below ground level (bgl), which were worked between 1899 and 1902. The seam thickness is recorded as 152 cm to 300 cm, with a dip of between 20.5° and 26.8° towards the north.
 - There are five mine shafts and ten adits within the Site boundary, with a further 13 off-site but close to the boundary. Details of the locations are provided on **Figure 10**;
 - There are outcrops associated with four named coal seams in Site area (including Brithdir Rider Group, No. 1 Rhondda, Tillery Brithdir and Tillery Rider No. 2;
 - There are no current underground mining operations being undertaken within the Site area;
 - The Proposed Development does not lie within 200 m of the boundary of a current opencast site;
 - The entire Site is within an area defined as a surface coal resource area;

- An area of unlicensed opencast working is located within the Site boundary in the southern area, between the former Ty-talwyn and Ton Phillip collieries (see **Figure 11**). This is very close to (and partially encroached on by) the southern extent of solar PV fields J, K and L;
- An area of historical surface mining is shown on the map viewer in the northern section of the Site (west of Bridgend Paper Mill, see **Figure 11**). This is approximately 120 m from solar PV area E;
- The Site is not in an area that is likely to be affected from any planned future underground coal mining. However, reserves of coal exist in the local area which could be worked at some time in the future; and
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

3.5.5 It should be noted that details of adits and shafts that are not within the boundary used by the Consultants Coal Mining Report have been accessed via the Mining Remediation Authority Map Viewer (<https://datamine-cauk.hub.arcgis.com/>, accessed February 2025). It should also be noted that records may be incomplete and consequently mine entries may exist in the local area of which the Mining Remediation Authority has no knowledge (see **Section 3.6** for further discussion on mine entries).

3.6 Mining Remediation Authority Plans and Information

3.6.1 Information provided by the Mining Remediation Authority is discussed in further detail in the following sections.

Mine Entry Data

- 3.6.2 The Consultants Coal Mining Report identifies two adits (Adit 287185-001 and 287185-002), the former being present inside the Site boundary, and the latter being just outside the Site boundary (see Image 1, **Figure 10**, and the 'Summary of findings' map within the Consultants Coal Mining Report in **Annex B**). **Figure 10** includes measurements between some mine entries and the closest built development elements.
- 3.6.3 These adits are both located within wooded areas (see **Image 1** below). The adit bearings are in a southerly/slight south-westerly direction (see **Table 6** for details). Therefore adit 287185-002 passes under/within the Site, even though the entry may be slightly off-site.
- 3.6.4 The entrance to adit 287185-001 (listed as mine entry reference 2 in **Table 6**) was identified during the Site reconnaissance survey in July 2023. This is estimated to be over 180 m from the nearest solar PV area, and approximately 600 m from the closest turbine. Adit 287185-002 (mine entry reference 3 in **Table 6**) could not be located due to restricted access and dense vegetation. The recorded location for this adit shows that it is possibly just off-site, and it is over 500 m from the nearest solar PV area and 700 m from the nearest turbine location. Photographs of the two adit locations are provided in **Annex D**. **Table 6** provides details of the distances from these entries to the nearest built development feature.

Image 1 – Adit 287185-001 and 287185-002 locations



- 3.6.5 The online Mining Remediation Authority Map Viewer (<https://datamine-cauk.hub.arcgis.com/>, 2025) displays an additional 13 mine shafts and mine adits located within the Site boundary (see **Figure 10**), with a further 13 (the quantity within the Site is estimated based on the proximity of some features to the Site boundary) just outside the Site boundary. The available information is summarised in **Table 6**, along with the distances to the nearest built development features.

Table 6 Summary of Mining Remediation Authority mine entry data (within the Site boundary)

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
1	286185-003 (not supplied)	Adit	12	3	Old Level, approximately 140 m to nearest solar PV area, nearest turbine over 700 m	Assumed untreated
2*	287185-001 (287449, 185666)	Adit	191	3	Old Coal Level, approximately 180 m from nearest solar PV area, 600 m from nearest turbine	Assumed untreated
3*	287185-002 (287680, 185880) (entry may be just off-site, but bearing means adit is beneath Site)	Adit	216	3	Old Coal Level, over 500 m from nearest solar PV area and 700 m from nearest turbine	Assumed untreated
4	287186-002 (not supplied)	Adit	162	3	Approximately 420 m from nearest solar PV area, over 700 m from nearest turbine	Assumed untreated
5	287185-004 (not supplied)	Adit	26	3	Old Level, approximately 56 m from nearest solar PV area, approximately 1 km from nearest turbine	Assumed untreated

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
6	287185-005 (not supplied)	Adit	309	3	Old Level, approximately 140 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
7	288185-015 (not supplied)	Shaft	-	2.5	Approximately 370 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
8	286187-009 (not supplied)	Adit	160	3	Trial Level, approximately 359 m from nearest solar PV area, approximately 680 m from nearest turbine	Assumed untreated
9	288184-032 (not supplied)	Shaft	Null	2.5	Approximately 500 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
10	288184-033 (not supplied)	Adit	329	3	Approximately 500 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
11	288184-026 (not supplied)	Shaft	Null	2.5	Tytlwyn No.3 Colliery - Trial Pit, approximately 500 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
12	288184-027 (not supplied)	Adit	352	3	Tytalwyn No.3 Colliery, approximately 450 m from nearest solar PV area, approximately 1 km from nearest turbine	Date treated 18/07/2008
13	287184-010 (not supplied)	Adit	13	3	Approximately 380 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
14	286184-012 (not supplied)	Shaft	Null	1.8 (actual)	Approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
15	286184-002 (not supplied)	Adit	350	3	Ton Philip Slant, approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
16	286184-017 (not supplied)	Adit	73	3	Trial Level, approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
17	286184-015 (not supplied)	Adit	58	3	Approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
18	286184-006 (not supplied)	Adit	341	3	Ton Philip Adit, approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
19	286184-014 (not supplied)	Adit	12	3	Approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
20	286184-017 (not supplied)	Adit	73	3	Trial Level, approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
21	286184-006 (not supplied)	Adit	341	3	Ton Philip Adit, approximately 326 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
22	286184-007 (not supplied)	Adit	9	3	Tynewydd Adit, approximately 420 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
23	286184-009 (not supplied)	Shaft	Null	2.5	Approximately 370 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
24	286184-011 (not supplied)	Adit	344	3	Tynewydd Slant, approximately 320 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
25	286184-013 (not supplied)	Adit	26	3	Approximately 261 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
26	286184-001 (not supplied)	Adit	45	3	New Slant, approximately 420 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
27	286184-008 (not supplied)	Shaft	Null	2.5	Old Shaft, approximately 295 m from nearest solar PV area, over 1 km from nearest turbine	Assumed untreated
28	287186-001 (not supplied)	Air shaft	Null	3	Approximately 180 m from nearest solar PV area, approximately 970 m from nearest turbine	Assumed untreated
29	285185-005 (not supplied)	Adit	Null	3	Approximately 266 m from nearest solar PV area,	Assumed untreated

Map location reference no. (See Figure 10)	Entry reference (and grid ref)	Type	Adit bearing (degrees)	Assumed shaft diameter (m)	Other details and distance to nearest built development area	Treatment details
					approximately 940 m from nearest turbine	
*Mine entry 2 and 3 identified in the Consultants Coal Mining Report (Annex B). All other entries identified from online Mining Remediation Authority Map Viewer (https://datamine-cauk.hub.arcgis.com/, 2025). Grey shaded rows are just outside the Site boundary (but if these relate to adits, they could pass beneath the Site).						

Minewater discharge locations

- 3.6.6 The Mining Remediation Authority, as part of the Pre-Application Consultation phase of the Proposed Development, provided details relating to a minewater discharge recorded as being present within the Site boundary, as follows:
- There is a record of a minewater discharge within the planning area (reference Discharge 608);
 - The minewater discharge is recorded as being at an elevation of approximately 115 m AOD;
 - There is no information recorded on the minewater gradient in the area, therefore the potential should be considered for the presence of shallow minewater or groundwater, which could mean that these will be encountered during construction works;
 - It is noted that the minewater or groundwater may be artesian; and
 - The flow of minewater at the discharge location is understood to control minewater levels, and it is noted that this should not be blocked or altered by the Proposed Development.

Abandoned Mine Plans

- 3.6.7 No abandonment mine plans were requested as part of this CMRA, as the Consultants Coal Mining Report (**Annex B**) identified coal seams at significant depths (from 246 m bgl). As a result, there was no record of workings that were sufficiently shallow to be expected to affect the surface.

Opencast Workings

- 3.6.8 Historical opencast workings were present along the far northern (areas E9 and E10) and southern site edges (areas B10 and E1), as highlighted in **Section 3.2**, and shown on **Figure 11** and the historical plans (**Annex A**). The Map Viewer (2025) also shows an area classified as 'surface mining (past and current)' in the north-east section of the Site, to the west of Bridgend Paper Mill (approximately 120 m from solar PV area E), and off-site to the south (the extensive area south of New Road shown on **Figure 11**). However, these areas are not identified as an opencast sites within the Consultants Coal Mining Report, so may have been licensed but never excavated, or relate to extraction of sandstone (therefore not recorded by the Mining Remediation Authority). The historical maps for this area of the Site (Envirocheck sections E11 and E12) do not show any evidence of widespread historical opencast workings in this location.

3.7 Other Workings

- 3.7.1 Sandstone extraction is known to have been undertaken in the area, associated with the opencast workings.

3.8 Site Borehole Records

- 3.8.1 Borehole records from previous ground investigations in the area have been obtained from the BGS, where these records are publicly available.
- 3.8.2 A total of 33 borehole records were identified for review (as presented in **Annex C**). These were drilled roughly between 1935 and 1975 (dates are not recorded for all boreholes) and were progressed to depths between 45.72 m and 1058.10 m bgl.
- 3.8.3 Where borehole records were available (17 logs in total), copies are provided in **Annex C**. A borehole location plan and index summary of the boreholes including grid references is also provided in **Annex C**.
- 3.8.4 The borehole records demonstrate that the expected geological sequence (as defined on the geological mapping) is present, with shallow soil and some superficial units, and bedrock of interlayered mudstone and sandstone from the Coal Measures Group.
- 3.8.5 The following boreholes were located close to built development areas, with details as shown:
- SS88NE9, located approximately 50 m north of solar PV area K and 100 m west of solar PV area G, showing the presence of soil and alluvium to a depth of 3.95 m bgl, over interbedded mudstone, fireclay and sandstone (Coal Measures units), drilled to a total depth of 47 m bgl; and
 - SS88NE15, approximately 450 m east of solar PV area E, showing shallow soil and sand/clay units to approximately 3 m bgl, over bedrock of sandstone and mudstone with coal traces (Coal Measures units), drilled to a total depth of 9 m bgl.

3.9 Geo-environmental Data Review

- 3.9.1 For details on assessment of contamination and geotechnical issues, refer to RSK report reference 323220-R01 (02), **ES Volume III, Appendix 5.2: Preliminary Risk Assessment**, dated November 2025.

3.10 Geology and Coal Mining Summary

- 3.10.1 The main geology encountered, including coal seams and horizons, is summarised in **Table 7**, with the shallower units at the top of the table.

Table 7 Simplified summary of the main worked seams and outcrops, with parent units

Generalised Vertical Section [Colliery]*				Thickness [Extraction thickness] (m)**	Depth (m) ***	Dipping rate of seam worked (in degrees) [Dipped direction of seam worked]****
Brithdir Rider (BdR)	Brithdir Member	Pennant Sandstone Formation	Warwickshire Group	'Thin' (unknown thickness, potentially workable)	-	Approx. 15-18° [north] (taken from BGS maps)
Brithdir (Bd)				'Thin' (unknown thickness, potentially workable)	-	
No. 1 Rhondda Rider Coal (No. 1 RR)	Rhondda Member			'Thin' (unknown thickness, potentially workable)	-	-
No. 1 Rhondda Coal (No. 1 R)				1.22 m (4 FT) / 1.0 m (BH18 BGS ID: 372610)	165 m (BH18 BGS ID: 372610)	-
No. 2 Rhondda Coal				1.10 m (3 FT 6 IN)	-	-
No. 3 Rhondda Coal [Coytrahen Park, Aberbaiden, Ty-Newydd, Pentre]	Llynfi Member				1.40 m (4 FT 6 IN) / 0.8 m (BH20 BGS ID: 372611) [0.8-1.67 m]	246 m

Generalised Vertical Section [Colliery]*			Thickness [Extraction thickness] (m)**		Depth (m) ***	Dipping rate of seam worked (in degrees) [Dipped direction of seam worked]****	
Upper Cwmgorse Marine Band (UCGMB)			South Wales Coal Measures Formation	South Wales Coal measures Group	-	-	
Hafod (Hd) [Aberbaiden]					0.85 m (2 FT 8 IN) [1.16 m]	383 m	17.2 [north]
Two Feet Nine (2-Ft-9) or Bodwr Fach					1.52 m (5 FT)	-	-
Upper Nine Feet (U9-Ft) or South Fawr					1.83 m (6 FT)	-	-
Amman Marine Band (AMB)					-	-	-
Yard (Yd) or Six-Feet					1.71 m (5 FT 6 IN)	-	-
Five-foot	Upper Five-feet (U 5-Ft) or Nine-Feet	[1.52-3 m]			2.31 m (7 FT 6 IN)	820 m	20.5 [north]
[Parc Slip]	Lower Five-feet (L 5-FT) or Five-Quarters				1.4 m (4 FT 6 IN)		
Gellideg (Ge) or Cribbwr Fawr			2.01 m (6 FT 6 IN)		-	-	
* Generalised Vertical Section: Incomplete list with only selected stratum displayed [Colliery - Taken from the Consultants Coal Mining Report] **Thickness - Taken from BGS scale maps 1:10,560 m unless stated otherwise [Extraction Thickness - Taken from the Consultants Coal Mining Report] ***Depth - Taken from Consultants Coal Mining Report unless stated otherwise ****Dip rate/direction - Taken from Consultants Coal Mining Report unless started otherwise Bold – Mined seams/outcrops confirmed on Site. For the full geological record, refer to Figure 5 to Figure 9							

4 ASSESSMENT OF SITE-SPECIFIC COAL MINING RISKS

4.1 Opencast Workings

- 4.1.1 Former quarries or historical opencast coal workings were present outside the Site boundary to the north (located in areas E9 and E10, with features being approximately 360 m from solar PV area E at the nearest point, and therefore requiring no further consideration) and within the Site boundary along the southern edge (areas B10 and E1, located partly within solar PV areas J and K, along the southern edge). No details of backfilling have been noted. It is anticipated that any opencast workings would pose minimal risk to the Proposed Development. The area within the Site boundary in the north, where no opencast area is shown on the Consultants Coal Mining report, but an area of surface mining is present on the Map Viewer, is approximately 120 m from the nearest solar PV area (area E), so does not require further consideration. The area partly within solar PV areas J, K and L will be further assessed in Section 5.2 to provide additional information relating to this issue.

4.2 Mine Shafts and Adits

- 4.2.1 As detailed in **Section 3.5**, there are approximately 15 mine entries located within the Site boundary (two from Consultants Coal Mining Report and 13 from the map viewer), including five shafts and 10 adits (with a further 13 mine entries located outside but within approximately 20 m of the boundary).
- 4.2.2 Only the location of Adit 287185-001 (Mine entry reference 2 in **Table 6, Figure 10**) was visually confirmed during a site reconnaissance visit in July 2023. Adit 287185-002 (Mine entry reference 3 in **Table 6, Figure 10**) could not be physically located. No other mine entry locations were identified during the site visit.
- 4.2.3 **Figure 10** displays the approximate distances of elements of the Proposed Development infrastructure to the nearest mine entry locations.
- 4.2.4 The majority of mine entries are located near the southern boundary of the Site, although several are present close to the route of Nant Cefnydfa and there is one isolated location in the northern Site section.
- 4.2.5 The following mine entries are discussed further in respect to potential additional actions in **Section 5.2**:
- Mine entry reference 1: 286185-003, adit (no treatment recorded);
 - Mine entry reference 5: 287185-004, adit (no treatment recorded);
 - Mine entry reference 12: 288184-027, adit (recorded to have been treated in 2008); and
 - Mine entry reference 13: 287184-01, adit (no treatment recorded).
- 4.2.6 Any approach to investigating these locations will need to be agreed with the Mining Remediation Authority.

- 4.2.7 For all shafts and adits, there is no information to indicate that any treatment, filling or capping has been undertaken (with the exception of mine shaft 288184-027, Mine entry reference 12 in **Table 6, Figure 10**). There is no information to suggest that any subsidence or collapse has occurred across the Site relating to the presence of these shafts and adits.

4.3 Worked Coal Seams

- 4.3.1 Coal seams are present across almost the entire site (**Figure 5 to 9**). Shallow workings may be present in some areas of the Site. However, it is anticipated that most workings present beneath the Site will be at considerable depth. These are a lesser concern to the Proposed Development due to the presence of a significant thickness of intact rock above the workings, which would prevent migration of any collapses within the worked seams upwards to the surface.
- 4.3.2 The Consultants Coal Mining Report and geological maps identify that beneath parts of the Site coal seams are present that are likely to have been worked underground. The workings would be likely to have been constructed as pillar and stall workings, where columns of coal were left in place to prevent collapse during operation.
- 4.3.3 If shallow worked coal seams are present beneath the Site, they may potentially be significant in terms of ground stability. It should be noted that “shallow” workings are defined as anything within 30 m of the surface (according to the Mining Remediation Authority document Risk based approach to development management: Guidance for developers, version 4, dated 2017). Shallow seams, if worked underground, could present a potential risk to ground surface stability if the workings were to collapse and ensuing voids migrate towards the ground surface. **Section 5.3** provides further details of actions required to assess this issue.

4.4 Minewater

- 4.4.1 A recorded minewater discharge is indicated to be present within the Site boundary (based on information from consultation with the Mining Remediation Authority). The exact location of this needs to be confirmed through further consultation with the Mining Remediation Authority, to ensure that construction activities do not adversely impact on the discharge flow pathway.

4.5 Coal Mining Gases

- 4.5.1 Beneath parts of the Site, coal seams are present, which are recorded to have been worked underground and may be partially interconnected through a series of mine entries.
- 4.5.2 The underlying Coal Measures are considered to be a potential source of hazardous ground gas and shallow coal workings and mine entries can provide preferential migration pathways.

5 MITIGATION STRATEGY

- 5.1.1 The CMRA completed in the preceding sections of this report has concluded that there may be risks to buildings and infrastructure constructed as part of the Proposed Development, and to end-users due to the presence of mine shafts and the possible underground working of shallow coal seams.
- 5.1.2 Aspects of coal mining discussed in the CMRA, which pose a risk to the Proposed Development of the Site, are covered in turn in this section, with comments provided as to what mitigation measures are considered necessary.

5.2 Opencast Workings

- 5.2.1 As an area of unlicensed opencast coal workings is shown on records to be present partly within solar PV areas J, K and L, additional assessment work, as part of the work to be undertaken post-consent, will be required to determine whether there are any remedial actions required in this location. It is not clear whether any opencast extraction did actually occur in this location, and if it did, whether any backfilling was then undertaken.
- 5.2.2 Given the possible presence of opencast workings in this location, intrusive investigation work will be required to confirm whether any excavation or backfilling works occurred. The nature and extent of this work will be agreed with the Mining Remediation Authority, and this would be undertaken post-consent.

5.3 Mine Shafts and Mine Adits

- 5.3.1 The status of the mine shafts and mine adits are not recorded (with the exception of mine shaft 288184-027, which has been recorded as having been treated: mine entry reference 12 in **Table 6**). In the absence of any records indicating treatment, all other shafts and adits should be considered to remain in situ, untreated and not capped.
- 5.3.2 The mine shafts and mine adits are mainly located away from proposed solar PV areas, turbine locations and substation locations, with the exception of mine entry references 1, 5, 12 and 13 (see **Table 6** and **Figure 10**).
- 5.3.3 Options for addressing issues relating to the mine entries are determined by the Proposed Development end use in the specific area of the Site. Further comments and details are presented in the following sections.

Built Development

- 5.3.4 Where built development is proposed in close vicinity to the shafts/adits then a more comprehensive scope of investigation works will be required in order to attempt to locate the shaft/adit and confirm local ground conditions. The findings of the investigation work would be used to determine the most appropriate form of treatment, which is likely to require filling of the shaft/adit if voids are present, followed by drilling and grouting consolidation treatment and provision of a reinforced concrete cap.

Mine Shaft and Adit Investigation Work

- 5.3.5 Initially, work would be undertaken to confirm if there are visible indications of the locations of the mine entries on the present site surface. Only the location of adit 287185-001 has been positively identified to date (July 2023).
- 5.3.6 Based on the Proposed Development layout, mine entry reference 5 (**Table 6, Figure 10**) is located near proposed solar PV area N and would be expected to require further investigation, with the detailed investigation design to be developed and agreed with the Mining Remediation Authority, subject to a planning condition.
- 5.3.7 There are limited details on the mine shafts and adits (see **Table 6**).
- 5.3.8 Mine shaft/adit investigation work is expected to be necessary where elements of the Proposed Development layout are in close proximity to mine entries, as noted above. Intrusive investigation work will then be required to confirm shaft/adit positions and ground conditions. This information would then be used to design appropriate treatment and capping. The proposed approach would have to be agreed with the Mining Remediation Authority (both the approach to the intrusive investigation, and the approach to any subsequent treatment and capping). This would be expected to be dealt with via a planning condition.
- 5.3.9 Probe drilling is likely to be recommended to locate the mine entries that are close to Proposed Development infrastructure (mine entry reference 5, as shown in **Table 6**, which is located in proximity to solar PV areas N and M).

Mine Shaft and Adit Treatment

- 5.3.10 Once a shaft/adit is located a scheme of treatment works would be prepared and agreed with the Mining Remediation Authority, which would be expected to be undertaken post-consent. The treatment will depend on the ground conditions present and the element of the Proposed Development that will be located nearby, but is likely to include:
- Filling or stowing of any voids within the shaft/adit;
 - Drilling and grouting consolidation to form a grout plug within the top section of the shaft/adit extending below rockhead to a depth a minimum of three times the shaft diameter; and
 - Provision of a reinforced concrete shaft/adit cap.
- 5.3.11 The grout plug would be expected to be formed from a number of treatment boreholes within the shaft/adit with pressure grouting in each treatment borehole, with a final central test borehole to confirm reduced grout takes (NB the number of treatment holes will be dependent on shaft diameter). Reinforced concrete caps would be required either at rockhead or on competent soils at more shallow depth, as agreed with the Mining Remediation Authority.
- 5.3.12 Mitigation works as described above, including the shaft stabilisation and design of suitable shaft caps, will need to be agreed in advance with, and permitted by, the Mining Remediation Authority.

5.4 Shallow Worked Coal Seams

- 5.4.1 It is known that deeper worked seams are present across the Site, however shallow workings may also be present in some areas of the Site.
- 5.4.2 Given the possible presence of workings in shallow seams, intrusive investigation work will be required in areas where Proposed Development infrastructure features are to be located. The investigation works will confirm the position of subcrop of the shallow seams, whether any voids or workings are present, and details of the nature of the bedrock and top/sub-soils present. This involves turbine locations 1, 2, 4 and 5 and solar PV areas D, G, J, L, K and M.
- 5.4.3 An intrusive investigation, subject to planning condition, will also help to facilitate design of the Proposed Development and further investigate the identified potential geotechnical constraints.
- 5.4.4 The required intrusive investigation would be expected to comprise rotary boreholes, targeting the areas of site most likely to have been affected. The rotary drilling work should be focussed on the conjectured shallow coal seams, specifically in the immediate down-dip area of each of the seams (i.e. to the north of each of the seam outcrops, as shown on **Figure 5 to 9**).
- 5.4.5 The work, which would require a Mining Remediation Authority permit, could be carried out as either a stand-alone phase of investigation work or could be included as part of the enabling groundworks once the detailed development layout is agreed and planning approval obtained. If the work is carried out as a stand-alone investigation it is recommended that rotary coring be carried out as part of the drilling works as this will assist in interpretation of ground conditions, confirmation of seam position and intact thickness and would assist in correlation between borehole locations.
- 5.4.6 The findings of the investigation work would be used to determine if any drilling and grouting consolidation treatment works are necessary. If shallow workings are present the general approach would be to undertake treatment on a regular primary borehole grid beneath proposed infrastructure areas (including a perimeter area), with more closely spaced boreholes (on a secondary or even tertiary grid) where evidence of intensive workings or high grout takes are recorded.
- 5.4.7 Foundation designs for the Proposed Development may need to be updated, dependent on the findings of the intrusive investigation.
- 5.4.8 Deeper worked coal seams require no further consideration, as the seam thickness and thickness of intact bedrock above the worked seams precludes the risk of any migration of voids to the surface.

5.5 Minewater discharges

- 5.5.1 Once the location of the recorded minewater discharge has been determined, further consideration will be given to any necessary mitigation regarding ensuring that the discharge point is not affected by the Proposed Development.

5.6 Coal Mining Gases

- 5.6.1 The underlying Coal Measures are considered a potential source of hazardous ground gas and shallow workings and mine entries provide preferential migration pathways.
- 5.6.2 Given these conditions it would be possible that a ground gas risk assessment will need to be completed. However, initial stages of intrusive investigation work will be completed post-consent to determine the presence/locations of any shallow workings, and this information will allow a decision to be reached as to whether any ground gas monitoring is required. Mining Remediation Authority approval of the approach will be required.

6 SUMMARY AND CONCLUSIONS

- 6.1.1 This CMRA provides a detailed assessment of the coal mining legacy issues for the proposed Mynydd Ty-talwyn Energy Park. The results of the assessment indicate that there are mine entries present on Site and beneath the Site, with the potential for areas of shallow workings and the potential for hazardous ground gases.
- 6.1.2 An intrusive investigation is recommended, which would be carried out post-consent to determine the exact locations of the mine shafts and mine adits that are close to Proposed Development infrastructure, so that appropriate treatment can be proposed, and to gain geotechnical data for foundation design. The location of the reported minewater discharge should be confirmed with the Mining Remediation Authority to ensure appropriate actions can be agreed relating to this.
- 6.1.3 It is recommended that a programme of intrusive investigation should be undertaken to confirm the existence/extent of shallow workings within the Site boundary and areas where opencast works may have been undertaken (in areas where Proposed Development infrastructure will be located) and to provide information to determine the most appropriate mitigation measures to address any mining issues. This work will also be undertaken post-consent. If considered necessary, this work may be followed by a ground gas risk assessment, and this should be discussed with and agreed with the Mining Remediation Authority.
- 6.1.4 A summary is provided in Table 8 to detail the locations where additional assessment is recommended post-consent with respect to coal mining issues.

Table 8 Summary of proposed additional assessment work relating to coal mining

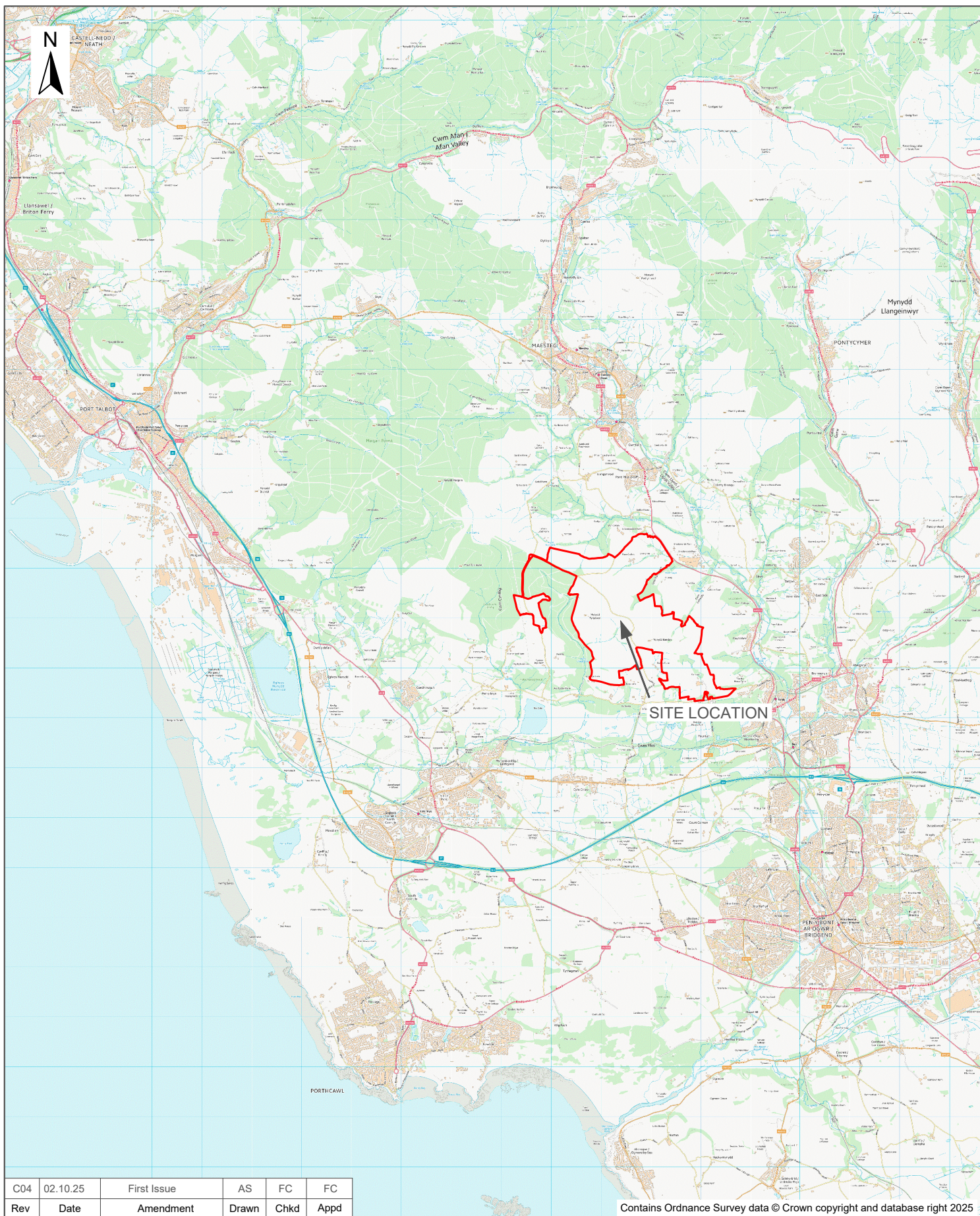
Built development	Potential Constraint	Proposed additional assessment work (post-consent)
Turbines 1, 2, 4 and 5	Possible shallow coal	Investigation works to confirm the position of subcrops of shallow coal seams, whether any voids or workings are present, and details of the nature of the bedrock and top/sub-soils present (see Section 5.4)
Turbines 3 and 6	None	-
Solar PV areas A, B, C, E, H, I, L, and O	None	-
Solar PV areas D, G, J, L, K and M	Possible shallow coal	Investigation works to confirm the position of subcrops of shallow coal seams, whether any voids or workings are present, and details of the nature of

Built develop-ment	Potential Constraint	Proposed additional assessment work (post-consent)
		the bedrock and top/sub-soils present (see Section 5.4)
Solar PV areas N and M	Mine entries	Probe drilling is likely to be recommended to locate the mine entries, with further actions defined based on findings of the first phase of work (see Section 5.3)
Solar PV areas J, L and K	Possible opencast mining	Intrusive investigation work will be required to determine whether any excavation or backfilling works occurred (see Section 5.2)
Locations to be agreed if necessary	Potential risks relating to coal mining gases	Locations for any assessment of risks relating to coal mining gases would be agreed after initial phases of investigation, when it will be possible to confirm whether shallow coal workings are present (see Section 5.5)

REFERENCES

- British Geological Survey (BGS), (1959). Sheet 34NW, Pontypridd (solid), 1-10,560 scale map, 1959.
- British Geological Survey (BGS), (1960). Sheet 34SW, Pontypridd (solid), 1-10,560 scale map, 1960.
- British Geological Survey (BGS), (1963). Sheet Number 248, Pontypridd (solid), 1-63,360 scale map, 1963
- Mining Remediation Authority, (2025). Mining Remediation Authority Map Viewer, accessed February 2025 (<https://datamine-cauk.hub.arcgis.com/>), various datasets.
- British Geological Survey (BGS), (2025). Onshore GeoIndex, accessed February 2025 (<http://mapapps2.bgs.ac.uk/geoindex/home.html>), various datasets.
- The Coal Authority (2017), Risk based approach to development management: Guidance for developers, version 4, dated 2017.
- The Coal Authority (2023), Consultants Coal Mining Report, Mynydd Ty-talwyn Energy Park, CA reference 71009601103001, issued 28 June 2023.
- Landmark Information Group (2023), Envirocheck report reference 314023019_1_1, dated 11 July 2023.
- RSK (2025), Preliminary Risk Assessment (PRA), Mynydd Ty-talwyn Energy Park, RSK report reference 323220-R03 (01), issued February 2025.

FIGURES



C04	02.10.25	First Issue	AS	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd

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Client

Galileo 03 Ltd

Legend

— Site boundary

Project Name

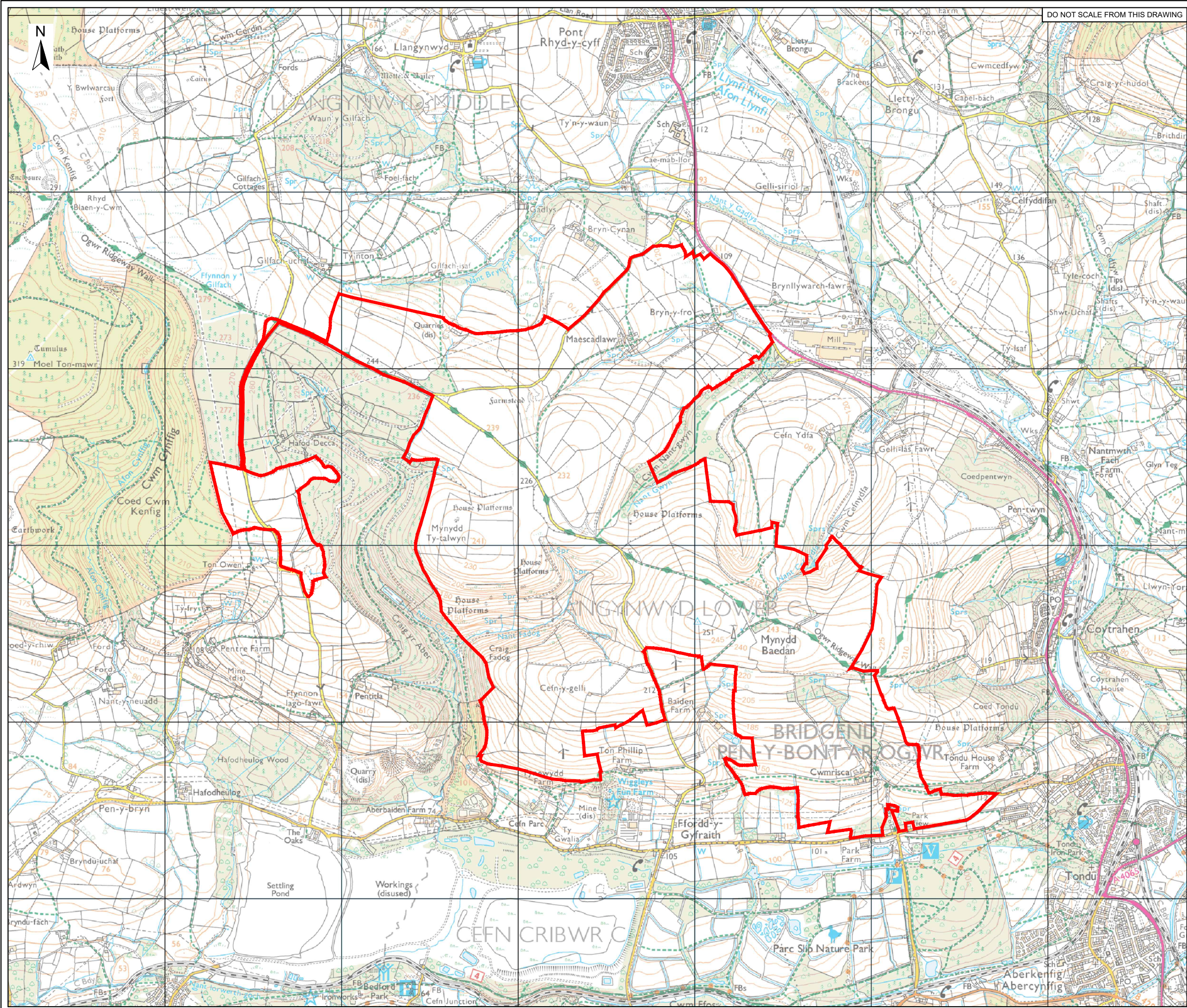
Mynydd Ty-talwyn Energy Park

Description

Site Location Plan

Dimension	Size	Scale	Geolocation
m	A4	1:25,000	286400, 186020

Project ID	Drawing no.	Rev	File name
323220	11101	C04	323220-HE-111-SS-D-C-11101-C02



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LEGEND

Site boundary

Notes:

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Project Name
Mynydd Ty-talwyn Energy Park

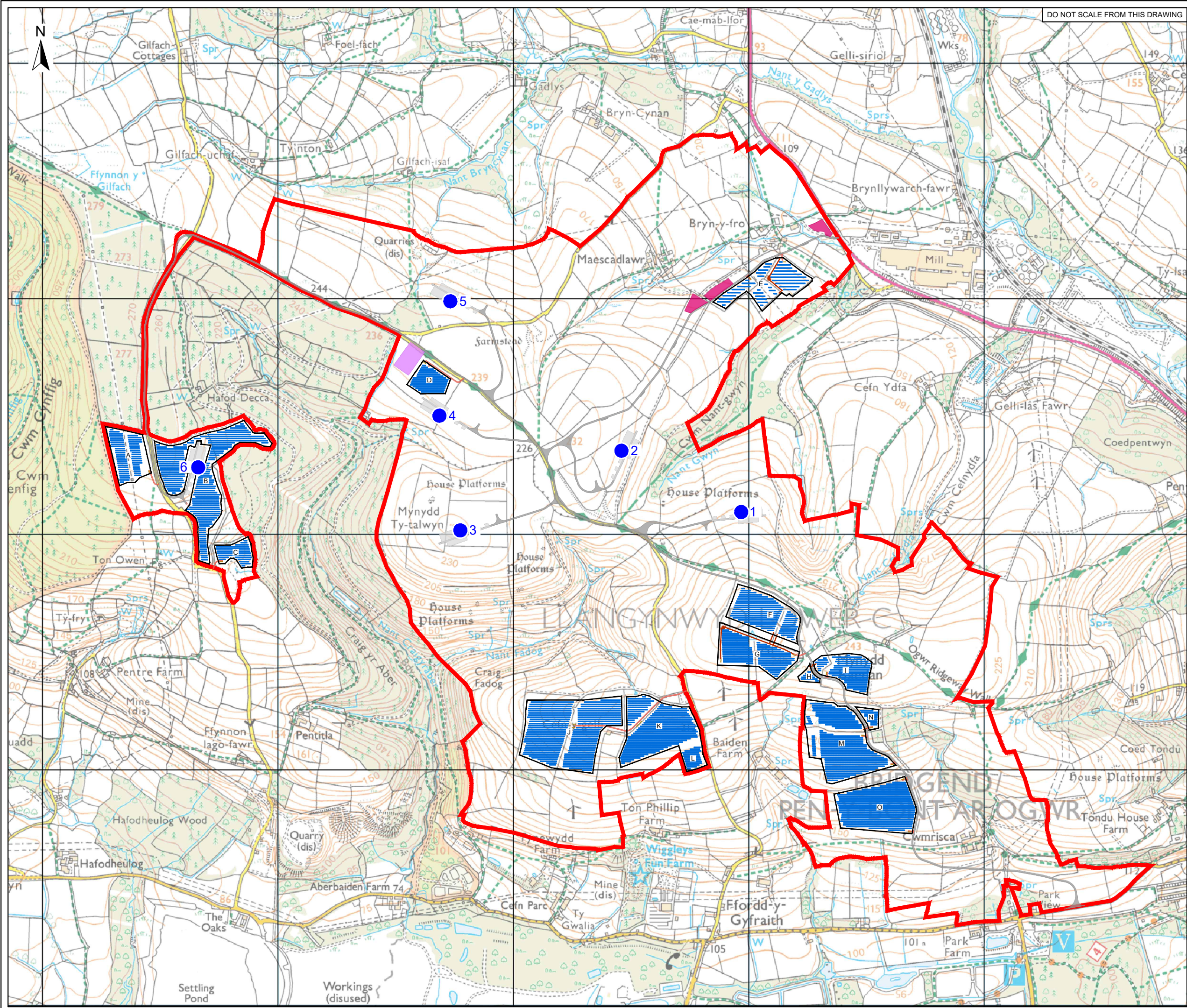
Description
Site Boundary Plan

Project ID	Drawing no.	Revision
323220	11201	C04

File name
323220-HE-112-SS-D-C-11201-C02

Dimensions	Scale	Size
m	1:20000	A3





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LEGEND

- Site boundary
- Turbine locations (1-6)
- Temporary Construction Compounds
- Track Layout and Northern Access Passing Places
- Temporary Track
- Solar Track
- Solar Panels (A-O) Fencing
- Solar Panels
- Inverters / Transformers
- Hardstandings
- Substation Platform

Notes:

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Project Name
Mynydd Ty-talwyn Energy Park

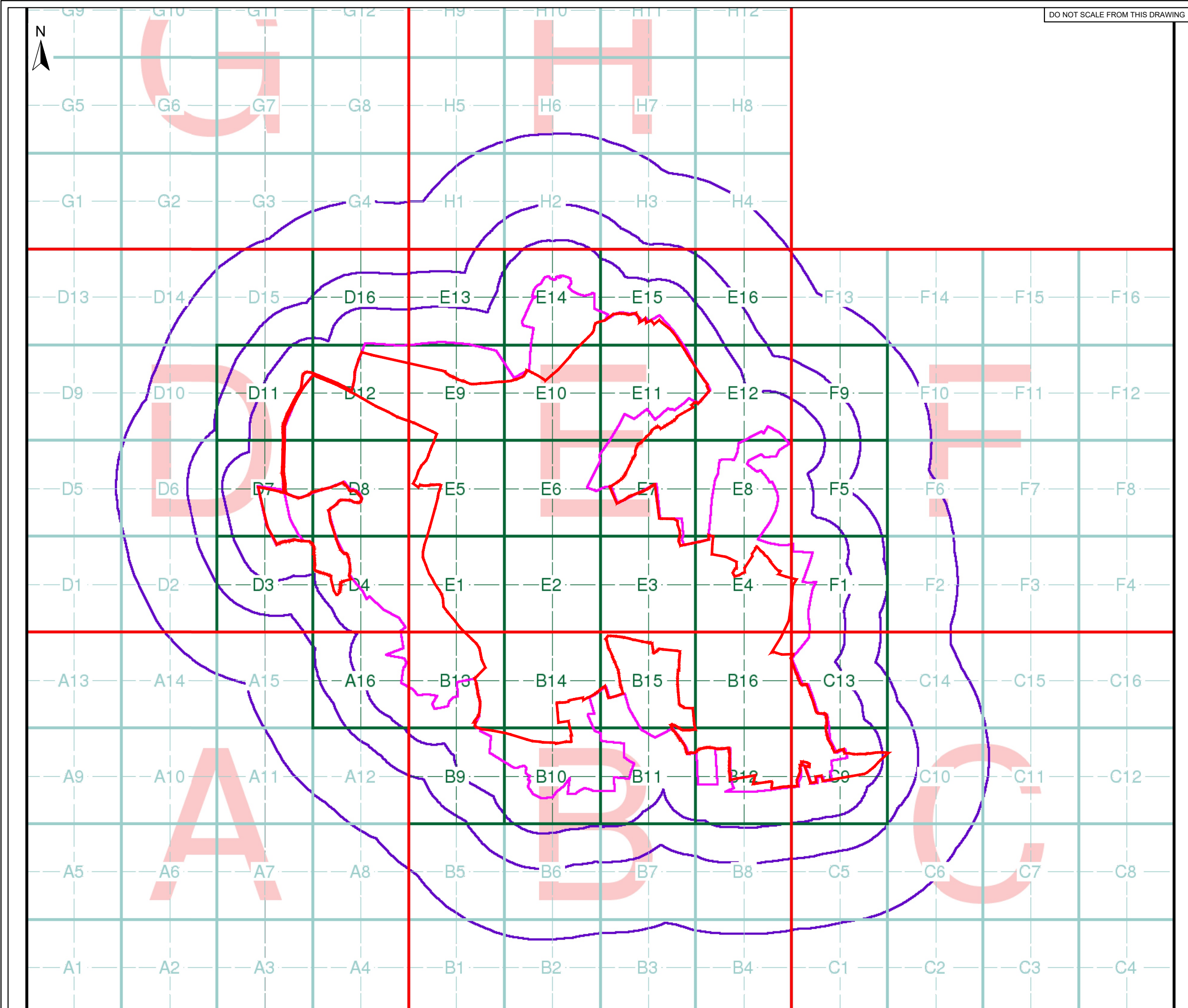
Description
Site Layout Plan

Project ID	Drawing no.	Revision
323220	32402	C05

File name
323220-HE-324-SS-D-C-32402-C02

Dimensions	Scale	Size
m	1:15000	A3





LEGEND

Site boundary

Boundary covered by Envirocheck Report

Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

Notes:

The site boundary has been revised since the Environmental Database Request was produced. All areas of the site are covered by the dataset

Baseplan provided by Envirocheck
Drawing ref.: 323220_EC_Index

C04	02.10.25	First Issue	AS	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd

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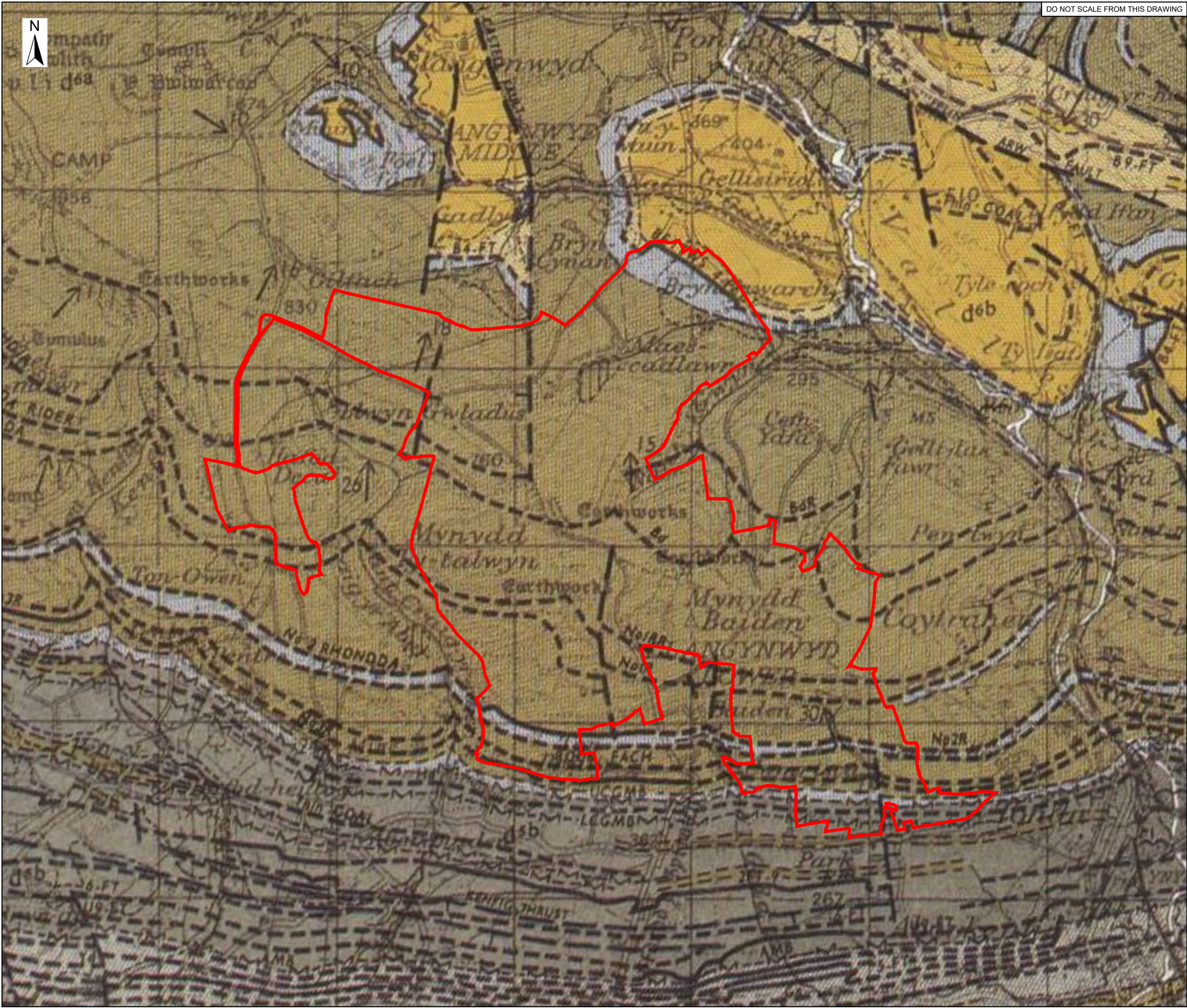
Project Name
Mynydd Ty-talwyn Energy Park

Description
Environmental Database Report - Index Map

Project ID 323220	Drawing no. 12101	Revision C04
----------------------	----------------------	-----------------

File name
323220-HE-121-SS-D-C-12101-C02

Dimensions m	Scale NTS	Size A3
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LEGEND

Site boundary

For 'Index, Explanation and Key to Geological Colours' refer to Drawing no. 21202 (File name:323200-HE-212-SS-D-C-21202)

Notes:

Site wide geology extracted from: British Geological Survey (BGS) map 1-63,360 scale, Sheet 248, Pontypridd, 1963 (SOLID).

C04	02.10.25	First Issue	AS	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd



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Project Name

Mynydd Ty-talwyn Energy Park

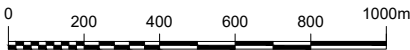
Description

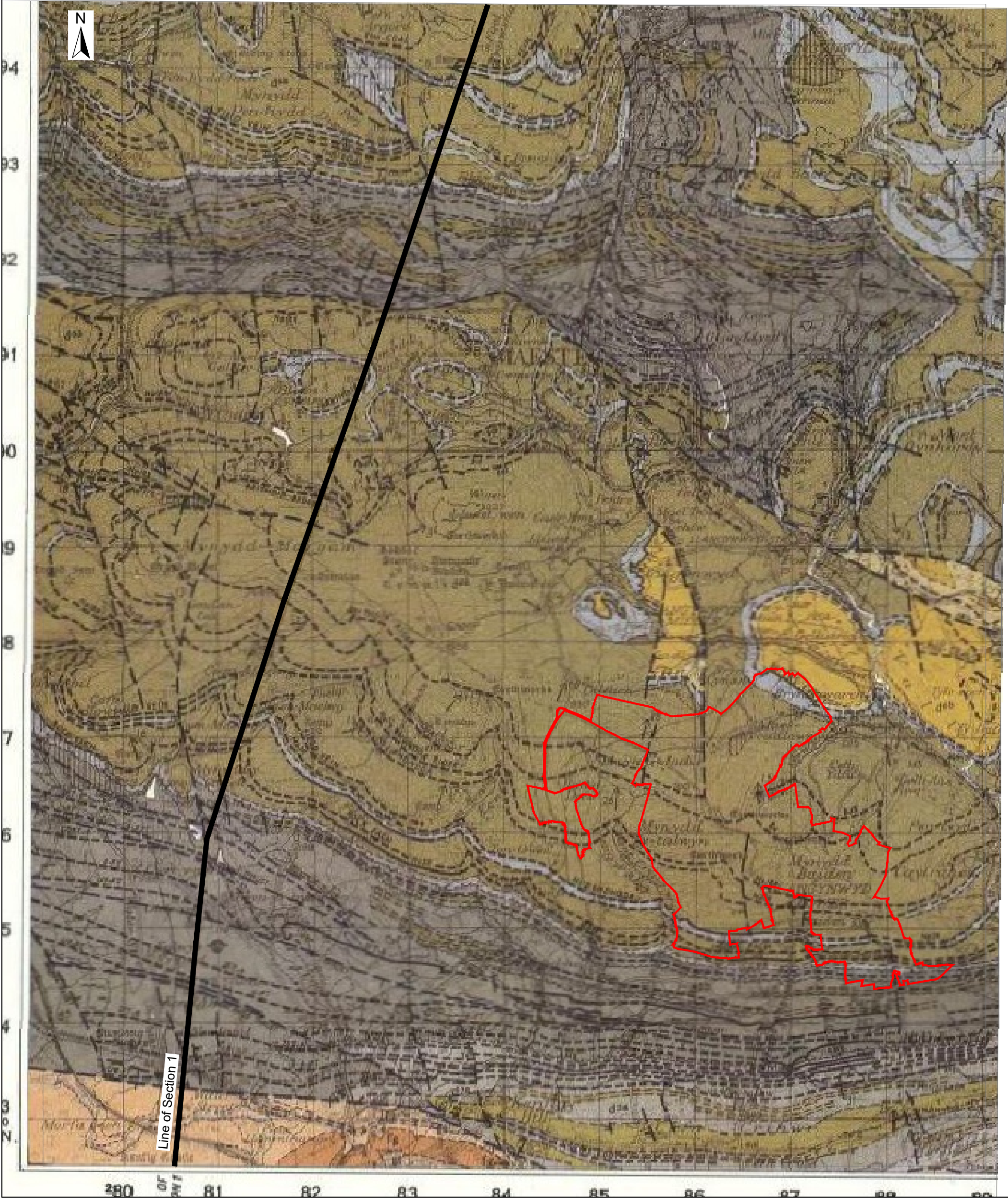
Geology Plan

Project ID	Drawing no.	Revision
323220	21201	C04

File name
323220-HE-212-SS-D-C-21201-C02

Dimensions	Scale	Size
m	1:20000	A3





LEGEND

Site boundary

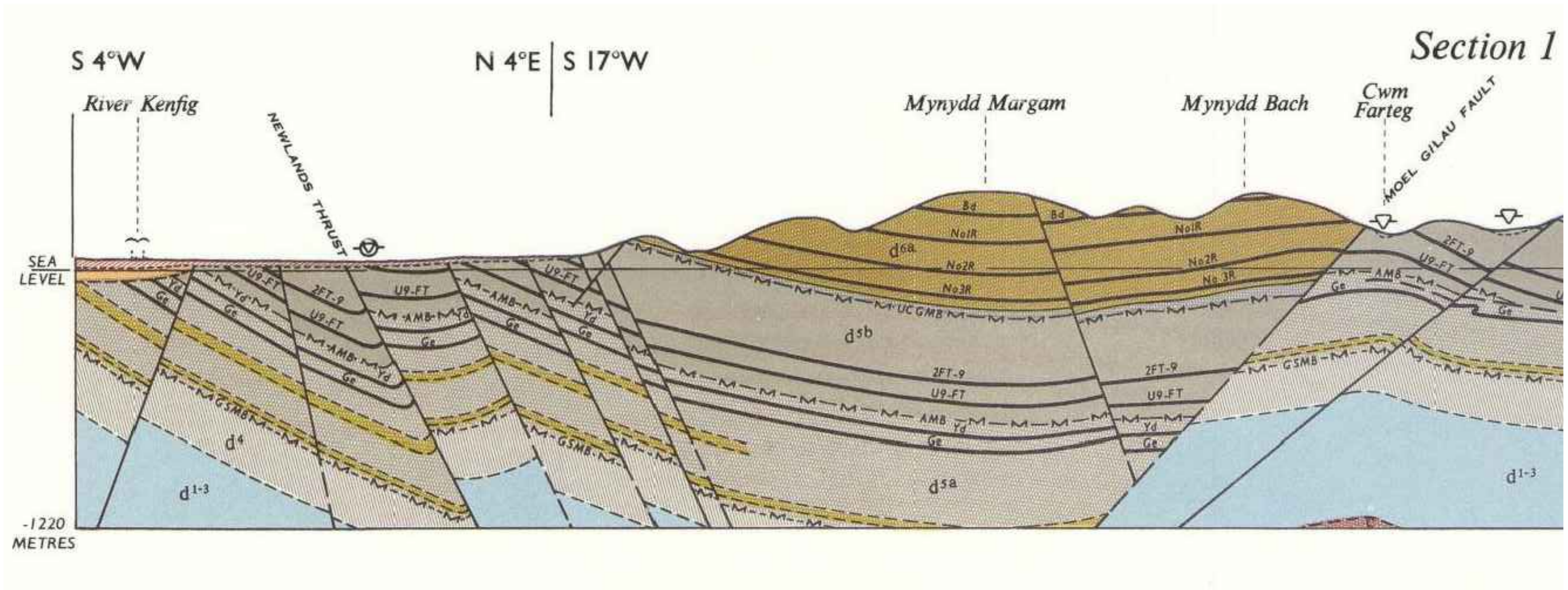
For 'Index, Explanation and Key to Geological Colours' refer to Drawing no. 21202
(File name: 323200-HE-212-SS-D-C-21202)

Notes:

Site wide geology extracted from: British Geological Survey (BGS) map 1-63,360 scale, Sheet 248, Pontypridd, 1963 (SOLID)

For 'Line of Section 1 Cross Section Extract', refer to Drawing no. 21203
(File name: 323200-HE-212-SS-D-C-21203)

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	Galileo 03 Ltd					
	Project Name					
Mynydd Ty-talwyn Energy Park				C04	02.10.25	First Issue
Description				Rev	Date	Amendment
Geology Plan with Line of Section 1 Location					Drawn	Chkd
					Appd	
Dimension	Scale	Size	Project ID	Drawing no.	Revision	File name
m	NTS	A3	323220	21206	C04	323220-HE-212-SS-D-C-21206-C04



Notes:

Cross section extracted from: British Geological Survey (BGS) map 1-63,360 scale, Sheet 248, Pontypridd, 1963 (SOLID).

For 'Line of Section 1 Cross Section Location', refer to Drawing no. 21206 (File name: 323200-HE-212-SS-D-C-21206).

C03	07.04.25	First Issue	AS	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd

LEGEND

For 'Index, Explanation and Key to Geological Colours' refer to Drawing no. 21202 (File name: 323200-HE-212-SS-D-C-21202)

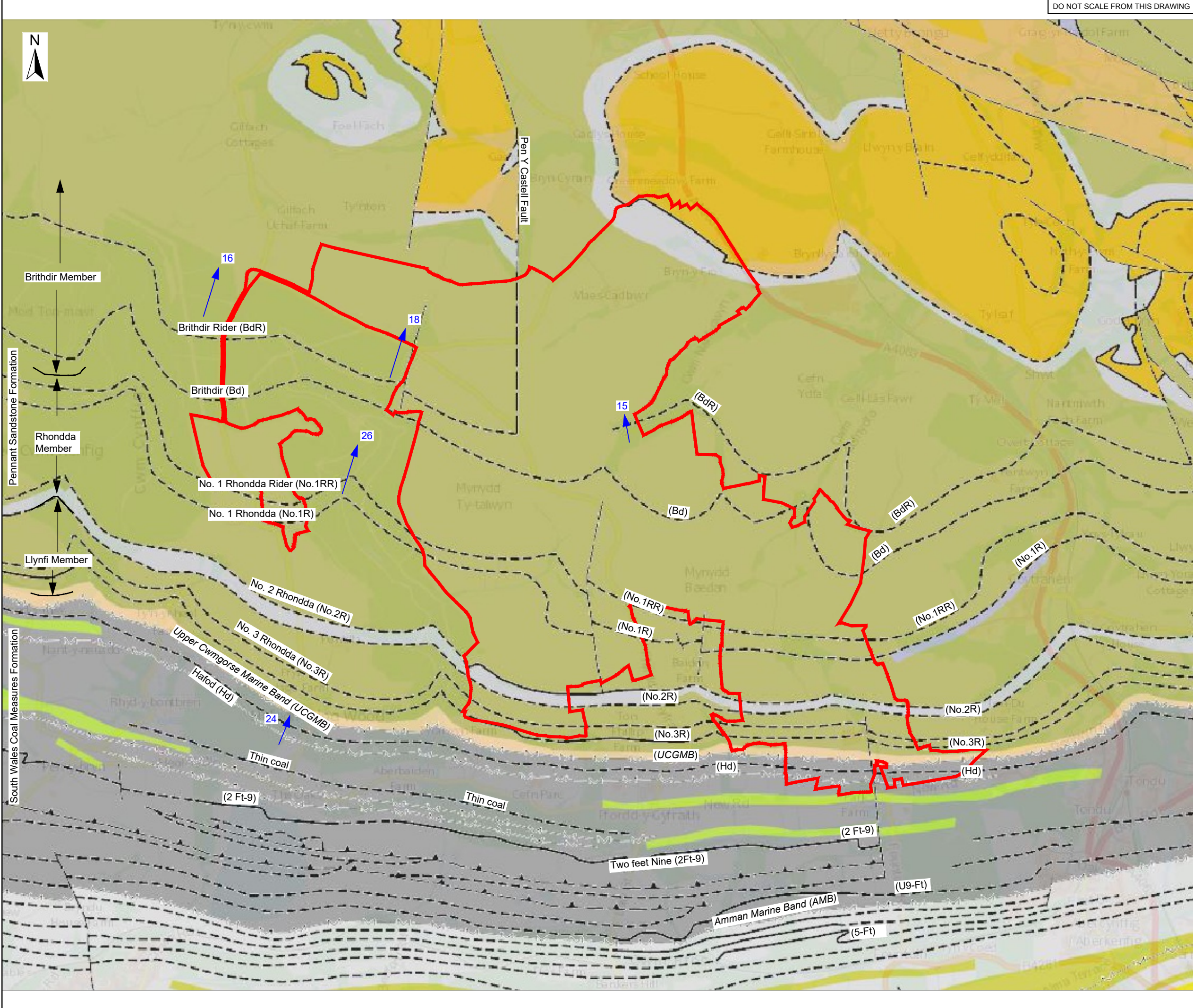


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Dimension	Scale	Size
m	NTS	A3

Client Galileo 03 Ltd			
Project Name Mynydd Ty-talwyn Energy Park			
Description Secion 1 Cross Section (extract)			
Project ID 323220	Drawing no. 21203	Revision C03	File name 323220-HE-212-SS-D-C-21203-C03



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LEGEND

- Site boundary
- Outcropping coal seams
- 15 Direction and angle of dip

Notes:

Not all geological features are shown on this summary drawing. Also, refer to:

- Drawing no. 21201 - Site Wide Geology Plan
- Drawing no. 21202 - Vertical Section with Index, Explanation and Key to Geological Colours
- Drawing no. 21203 - Secion 1 Cross Section (extract)

Base drawing extracted from BGS Geology Viewer (online).

C04	02.10.25	First Issue	AS	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd

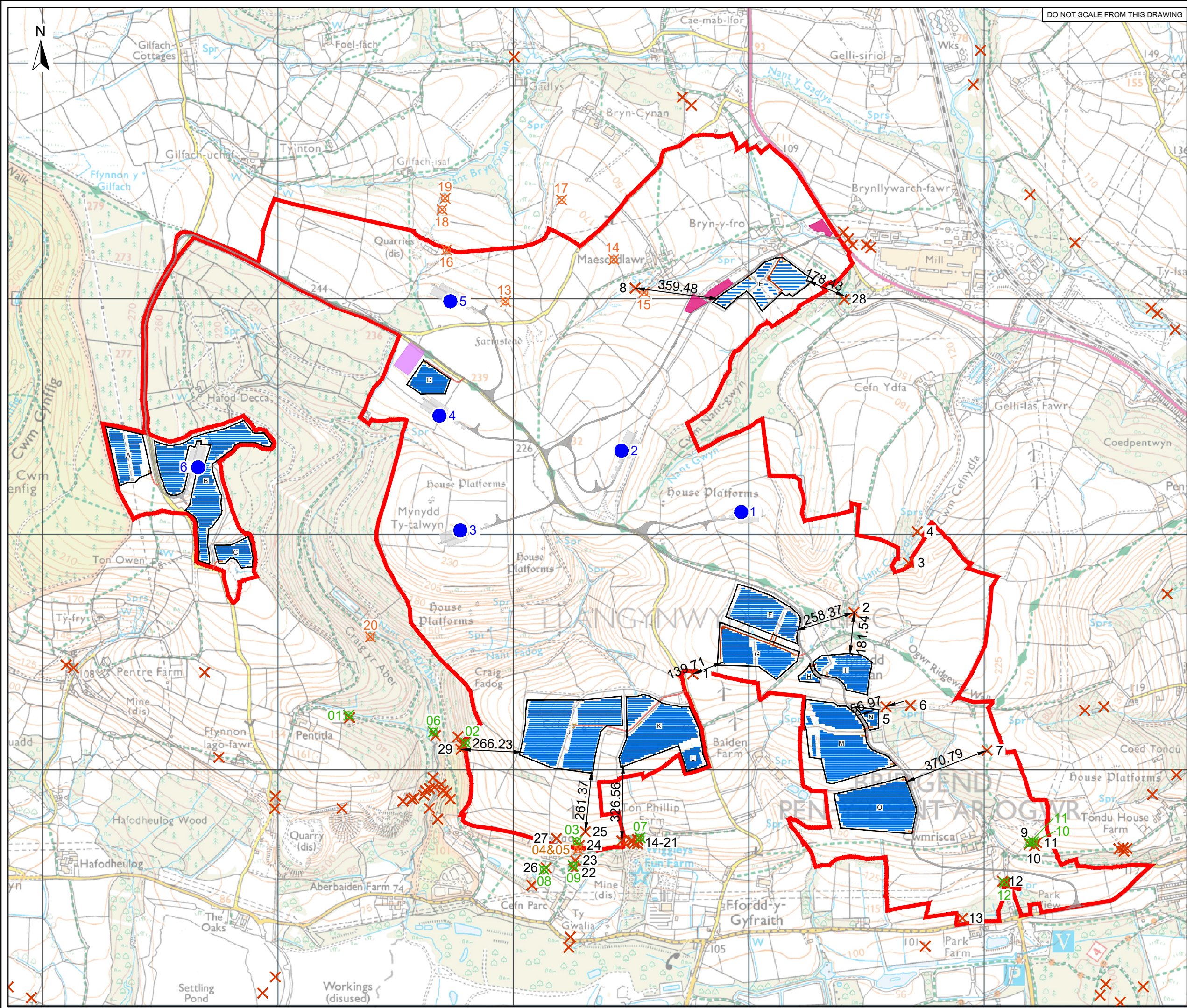


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Client		
Galileo 03 Ltd		
Project Name		
Mynydd Ty-talwyn Energy Park		
Description		
Bedrock and Linear Features Summary		
Project ID	Drawing no.	Revision
323220	21204	C04
File name		
323220-HE-212-SS-D-C-21204-C03		
Dimensions	Scale	Size
m	1:20000	A3
		



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LEGEND

- Site boundary
- Turbine locations (1-6)
- Temporary Construction Compounds
- Track Layout and Northern Access Passing Places
- Temporary Track
- Solar Track
- Solar Panels (A-O) Fencing
- Solar Panels
- Inverters / Transformers
- Hardstandings
- Substation Platform
- Mine entries
- No. 1-27 Mine entry records reviewed
- Approximate distances in metres (m)
- Underground coal mining location (Grid reference of approximate centre point)
- Sandstone quarry location (Grid reference of approximate centre point)

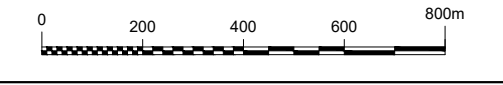
Notes:
See summary table accompanying this drawing for details of underground coal mining locations and sandstone quarry locations.
Contains features from:
MTT_Infrastructure_Export_26-02-2025
Mine Entries.dwg
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C05	05.11.25	Fourth Issue	EC	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd

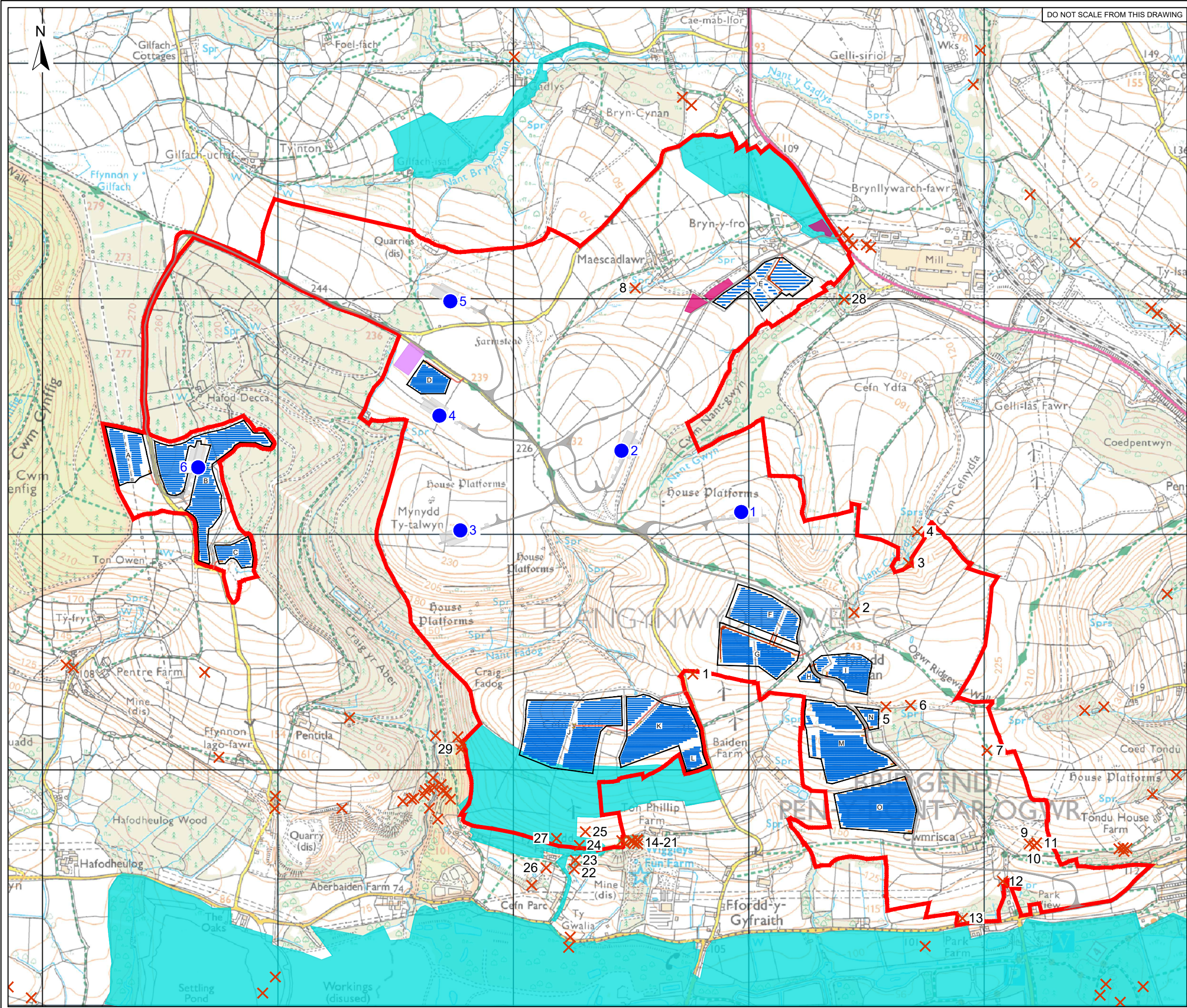


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Client Galileo 03 Ltd		
Project Name Mynydd Ty-talwyn Energy Park		
Description Developable Areas Compared to Mine Entry Locations		
Project ID 323220	Drawing no. 12202	Revision C05
File name 323220-HE-122-SS-D-C-12202-C03		
Dimensions m	Scale 1:15000	Size A3
		

	List of underground coal mining and sandstone quarry locations to accompany drawing reference 323220-HE-122-SS-D-C-12202			
Map ref number	Grid reference	Grid reference shown on drawing	Feature type	Other notes
1	285300, 185230	Green symbol	Underground coal mining (grid reference of approximate centre point)	Ty-talwyn Colliery
2	285797, 185113	Green symbol	Underground coal mining (grid reference of approximate centre point)	
3	286270, 184695	Green symbol	Underground coal mining (grid reference of approximate centre point)	Ton Phillip Colliery
4	286275, 184660	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
5	286275, 184660	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
6	285660, 185160	Green symbol	Underground coal mining (grid reference of approximate centre point)	
7	286539, 184709	Green symbol	Underground coal mining (grid reference of approximate centre point)	
8	286130, 184575	Green symbol	Underground coal mining (grid reference of approximate centre point)	
9	286255, 184590	Green symbol	Underground coal mining (grid reference of approximate centre point)	
10	288209, 184693	Green symbol	Underground coal mining (grid reference of approximate centre point)	
11	288194, 184688	Green symbol	Underground coal mining (grid reference of approximate centre point)	
12	288086, 184520	Green symbol	Underground coal mining (grid reference of approximate centre point)	
13	285966, 186988	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
14	286426, 187166	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
15	286556, 187027	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
16	285716, 187207	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
17	286205, 187420	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
18	285697, 187378	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
19	285710, 187426	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	
20	285392, 185563	Orange symbol	Sandstone quarry (grid reference of approximate centre point)	



DO NOT SCALE FROM THIS DRAWING

LEGEND

- Site boundary
- Mine entries
- Surface mining (past and current)
- Turbine locations (1-6)
- Temporary Construction Compounds
- Track Layout and Northern Access Passing Places
- Temporary Track
- Solar Track
- Solar Panels (A-O) Fencing
- Solar Panels
- Inverters / Transformers
- Hardstandings
- Substation Platform

Notes:

The surface mining area shown to the north west of the Site, and the area within the Site boundary at the southern edge, are both included in the Coal Authority Consultants Report reference 71009601103001, dated June 2023, labelled as Unlicensed Opencast Sites. These areas are also indicated on the MRA Map Viewer, categorised as 'Surface Mining (Past and Current)'. The other two areas are only shown on the MRA Map Viewer as Surface Mining (Past and Current) areas, and are not identified by the Coal Authority Consultants Report

Contains features from:
MTT_Infrastructure_Export_26-02-2025
Mine Entries.dwg
[323220]QGIS v1.0QGIS v1.0

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C04	05.11.25	Fourth Issue	EC	FC	FC
C03	02.10.25	Third Issue	EC	FC	FC
C02	23.04.25	Second Issue	EC	FC	FC
C01	07.04.25	First Issue	EC	FC	FC
Rev	Date	Amendment	Drawn	Chkd	Appd



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Project Name
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Description
Figure 11
Other coal mining constraints

Project ID	Drawing no.	Revision
323220	21210	C04

File name
323220-HE-324-SS-D-C-32402-C02

Dimensions	Scale	Size
m	1:15000	A3

